UNITED STATES DEPARTMENT OF AGRICULTURE
Rural Utilities Service
Washington, DC 20250-1500

Supplement No. 5, November 1997, to the

**LIST OF MATERIALS ACCEPTABLE FOR USE ON TELECOMMUNICATIONS
SYSTEMS OF RUS BORROWERS (Informational Publication 344-2)
(Issue date January 1997)**

The attached pages are those which have been revised by action of
the Technical Standards Committee "A" (Telecommunications)
between October 1 and November 30, 1997. The pages include
changes in listing due to additions, deletions, and corrections
made through Meeting No. 704 of the Committee.

Each copy of the List of Materials (Telecommunications) should be
updated by making the following changes:

Remove the Following:		Insert the Following:	
Page	**Dated**	**Page**	**Dated**
1.5.1	7-97	1.5.1	11-97
1.5.2, 1.5.3	"	1.5.2, 1.5.3	"
2.2	9-97	2.2	"
2.2.1	1-97	2.2.1	"
5.4	7-97	5.4	"
6.1	1-97	6.1	"
6.4	9-97	6.4	"
6.5	7-97	6.5	"

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5.4	7-97	5.4	"
6.1	1-97	6.1	"
6.4	9-97	6.4	"
6.5	7-97	6.5	"

oc-Fiber Optic Cable

RUS Standard Designations "BFO", "CO", and "UO" (Filled) 7 CFR 1755.900
These manufacturers' cables shown by catalog designations comply with 7 CFR 1755.900

oc-a Unit Core or Central Core Tube Fiber Core Construction

RUS Standard Suffixes

Cable Construction

Manufacturer	A(1)	B(1)	C	D	P(2)	s	m
Alcatel(5)	-	UND	(8)RD	-	-	X	-
AT&T/AT&T Fitel(6)	-	4DNX	4D_(9)X	-	-	X	-
Pirelli(5)	-	-	-	(19)_CS1LACNAJA(4)	-	X	-
Siecor(7)	-	EST-_(10)(4)	SST-Ribbon	EST-_(10)(4)	(X)P-RUS	X	X
	-	SST-Ribbon	-	OPTISPAN R(4)	(X)P-RUS	X	X
Sumitomo Electric(6)	SE-3LD	SE-3LK(4)	SE-3LB	SE-3LA(4)	-	X	-

Mode: s, m

See page 1.5.3 for suffixes and notes.

oc-Fiber Optic Cable

RUS Standard Designations "BFO", "CO", and "UO" (Filled) 7 CFR 1755.900
These manufacturers' cables shown by catalog designations comply with 7 CFR 1755.900

oc-b Multiple Loose Tube Fiber Core Construction(3)

RUS Standard Suffixes

Cable Construction

Manufacturer	E(1)	F(1)	G	H	P(2)	Mode s	Mode m
Alcatel(5)	__(11)SD	__(11)ND	__(11)_(12)D	__(11)_(13)D	-	X	-
AT&T/AT&T Fitel(7)	AT-D2	AT-12	AT-_(14)2	AT-_(15)2	(X)P-RUS	X	X
Pirelli(5)	-	(19)_CSLALNSJA	-	(19)_CS1LALNSAA	-	X	-
Remee Products(5)	-	22-EBS_(20)NN	-	23-MBS_(20)AN	-	X	-
Siecor(7)	TubeStar^R Mini-Bundle^R ALTOS™(22)	TubeStar^R Mini-(16)R ALTOS™_(21)(22)	TubeStar^R Mini-(16)R ALTOS™_(21)(22)	TubeStar^R Mini-(16)R ALTOS™_(21)(22)	(X)P-RUS (X)P-RUS (X)P-RUS	X X X	X X X
Sumitomo Electric(6)	SE-3HK	SE-3GK	SE-3HA	SE-3G_(18)	-	X	-

oc-Fiber Optic Cable

RUS Standard Designations "CFO" (Filled) 7 CFR 1755.900
These manufacturers' cables shown by catalog designations comply with 7 CFR 1755.900

oc-c Self-Supporting Filled Fiber Optic Cables

RUS Standard Suffixes

Manufacturer	Cable Construction				Mode		
	I	J	K	L	P(2)	S	m
Alcatel(5)	(17)FD	-	(17)BD	-	-	X	-
AT&T/AT&T Fitel(7)	AT-1M	AT-27	AT-NM	-	(X)P-RUS	X	X
Remee Products(5)	88-EBS__(20)NN	88-EBS__(20)NS	88-EBS__(20)AM	88-EBS__(20)AS	-	X	-
Siecor(7)	EST-__(10)	SOLO-ADSS	EST-__(10)	-	(X)P-RUS	X	X
	Mini-Bundle^R	-	OPTISPAN^R	-	(X)P-RUS	X	X
	SST-Ribbon	-	Mini-__(16)(R)	-	(X)P-RUS	X	X
	-	-	SST-Ribbon	-	(X)P-RUS	X	X
	ALTOS™(22)	-	ALTOS™__(21)(22)	-	(X)P-RUS	X	X

See page 1.5.3 for suffixes and notes.

Suffixes:

A - Nonarmored with Metallic Strength Members Embedded in Jacket
B - Nonarmored with Dielectric Strength Members Embedded in Jacket
C - Armored with Metallic Strength Members Embedded in Jacket
D - Armored with Dielectric Strength Members Embedded in Jacket
E - Nonarmored with Metallic Central Strength Member
F - Nonarmored with Dielectric Central Strength Member
G - Armored with Metallic Central Strength Member
H - Armored with Dielectric Central Strength Member
I - Nonarmored with Metallic Support Messenger
J - Nonarmored with Dielectric Support Messenger
K - Armored with Metallic Support Messenger
L - Armored with Dielectric Support Messenger
P - Preconnectorized Cable
s - Single Mode
m - Multimode

Notes

[1] Aerial and duct use only.
[2] Replace (X) with manufacturer's catalog designation shown in the listing for Cable Construction Types A through L.
[3] May contain multiple fibers per tube.
[4] Not embedded in jacket; surrounds central core tube.
[5] Accepted only for dispersion-unshifted and dispersion-shifted single mode optical fibers.
[6] Accepted only for dispersion-unshifted single mode optical fibers.
[7] Accepted for dispersion-unshifted and dispersion-shifted single mode optical fibers. Also accepted for 50/125 and 62.5/125 micrometer multimode optical fibers.
[8] Replace blank with either the letter U or M.
[9] Replace blank with either the letter H, M, R, or S.
[10] Leave blank space either blank or replace blank space with the word "micro."
[11] Replace blank with either the letter A or P.
[12] Replace blank with either the letter R or the number 9.
[13] Replace blank with either the letter A or the number 8.
[14] Replace blank with either the letter B or K.
[15] Replace blank with either the letter H or N.
[16] Replace blank with either the word "bundle" or "bundle light."
[17] Replace blank with either the letter D, F, or U.
[18] Replace blank with either the letter A or E.
[19] Replace blank with either the letter D or S.
[20] Replace blank with either the letter B, F, or L.
[21] Leave space blank or replacce bllank space with the word "Lite."
[22] Cable uses a "Water Blocking Tape" in place of a "Gel Compound" as the filling compound surrounding the multiple loose tube buffers in the cable core.

pl - Splice Closure

Manufacturer	Max. Cable Dia.	In-Line	Butt	Branch	Encapsulant[2]
e - Aerial Splice Closure for Fiber Optic Cables[1]					
Filled					
Preformed Line Products	--	8001006	8001005	8001006	RD
Non-Filled[7]					
Preformed Line Products	--	8006560[8] 8006561[9]	8006560[8] 8006561[9]	8006560[8] 8006561[9]	--
f - Buried Splice Closure for Fiber Optic Cables[1]					
Filled					
3M	--	2177-R	2177-R	2177-R	4442
Preformed Line Products	--	8001006	8001005	8001006	RD

g - Buildings and Central Office
Vault Splice Closure for Fiber Optic Cables

Non-Filled

	Non-Flame Retardant	Flame Retardant
Lucent Technologies	--	UCB1
3M	2178S	2178 FOSC
Preformed Line Products	--	8001010 8001011

Notes:
[1] Fiber organizer trays shall be ordered in accordance with manufacturer's instructions.
[2] The encapsulant is a component part of the splice closure system and shall be provided by the closure manufacturer. The encapsulant is not accepted on an individual basis.
[3] The main cable diameter, cable configuration (number of cables, pair count and gauge), and splice bundle diameter should be specified by the engineer.
[4] 3M Better Buried closures are accepted for Branch splicing only.
[5] For vertical installations order standard closure with "5925 FireBarrier Shield."
[6] Metric sizes available for the following manufacturers: 3M.
[7] These closures to be used only for non-trunking and non-toll applications and may also be installed in pedestals.
[8] Dimensions: 6.0" x 22".
[9] Dimensions: 8.5" x 22".

Manufacturer	**Type Conduit**	**Catalog Number**
	hc - Underground Conduit	
Allwire, Inc.	Flexible plastic	ALLDUCT
American Pipe & Plastic	Plastic	Type B, C, and D
Americon International	Flexible plastic Plastic	HDPE Duct PVC Type C
Apache Plastics, Inc.	Plastic	Type EB and Type DB
ARMCO	Plastic	Smooth-Cor Type B and Type C
Bay Plastics, Inc.	Plastic	Type B and Type C
Bristolpipe	Plastic Plastic	Type B, C, and D Type EB and Type DB
Can-Tex	Plastic Plastic	Type EB and Type DB Type B, C, and D
Carlon	Plastic Plastic Plastic	Type EB and Type DB Type B, C, and D Multi-Gard
Certain-Teed Products Corp.	Plastic	Type EB and Type DB
CIBA-GEIGY[1]	Fiberglass	T & D Conduit
Condux International, Inc.	Concrete Plastic	Condux Type EB and Type DB
CSR PolyPipe	Flexible plastic	HDPE Duct
Dura-line	Flexible plastic	HDPE Duct
Freedom Plastics, Inc.	Plastic	Type C
Hercules, Inc.	Flexible plastic	Corflo plastic conduit
Hurlbut Plastic Pipe	Plastic	Type C
Ingomar Plastic Pipe	Plastic	Type B and Type C
J-M Manufacturing Company	Plastic	Types C, EB, and DB
Kyova	Plastic	Type EB and Type DB
LCP National Plastics, Inc.	Plastic Plastic	Type EB and Type DB Type B and Type C

See page 2.2.1 for notes.

Manufacturer	Type Conduit	Catalog Number
	hc - Underground Conduit	
Northern Pipe Products	Plastic	Type B, C, and D
Pacific Plastics	Plastic Flexible plastic	Type EB and Type DB HDPE Coiled Duct
Phillips Products Co., Inc.	Flexible plastic	Driscon 3200
Phone Ducs	Plastic	Multiple plastic conduit (4, 6, & 9 Way)
PLEXCO	Flexible plastic	PLEXCO Duct
Pyramid Industries, Inc.	Plastic Flexible plastic	Type EB and Type DM HDPE Conduit
Quail Plastics	Plastic	Type EB and Type DB
Queen City Plastics	Plastic	Type EB and Type DB
River City Plastics	Plastic	Type EB and Type DB
Sedco	Plastic	Type EB and Type DB
Tamaqua Cable Products	Flexible plastic	HDPE Duct
Tridyn Industries	Plastic	Type EB and Type DB
Vassallo Industries	Plastic	Type B and Type C
Wesflex	Flexible plastic	Flex-Con
Western Plastics	Plastic	Type EB and Type DB

Note: For fiber and plastic conduit, Type I, Type B or Type EB is for concrete encasement and Type II, Type C or Type DB may be directly buried. Type D is for exposed installation, as on bridges.

(1)Filament wound fiberglass/epoxy conduit.

er - Cable Enclosures

Ready Access Enclosures

Lashed Cables

Manufacturer	Main Cable Dia. Range	Straight	Branch
Communications Technology Corp.	0.50-2.20"	Termax C-2280	-
RELTEC Corp. (Reliable Electric)	0.4-1.2" 1.2-2.0" 2.0-3.0"	100 MB-P10318 200MB-P10709 430	100 MBY-P10318 200MBY-P10709 430Y

Manufacturer		**Catalog Number**

gg - Power Service Protectors

	Maximum Service Voltage:	125/250
Atlantic Scientific	ZoneGuardian Plus	#42003
	" "	#43005
	" "	#43006
	ZoneGuardian Series	#35029
	" "	#35030
	" "	#35031
EFI Corporation		DPI 153
		DPI 453 Turbo ST
		EFI 153
		EFI 453 Turbo ST
Joslyn		1270-02
Siecor		CP 211
TII		410BM
		411BM
		412BM
		422BM
Transtector		ACP100BL
		CPS 150
Tripp Lite		ISOBLOK 2-0
		ISOBAR 2-6
		" 4-6
		" 8-15

nh - Gas Tube Arrester[1]

Manufacturer	MDF Module	Station Module	Well Mount
Joslyn	-	2022-60-A[2][5]	-
Porta Systems	-	65BCN[2][5]	-
RELTEC Corp. (Reliable Electric)	6A20[2][5] 3G[3][4]	6U2VS[2][5] 3GUVS[3][4] G1200-0-350[2][5]	1304VSR2[2][5] -
Siecor	7A[2][5] 9A[3][5]	7X[2][5] 9X[3][5]	- -
TII	-	355M[3][6] 356M1[3][5]	-

nh - Solid-State Arrester[7]

Manufacturer	MDF Module
Circa Telecom CT3B1S[8][10]	CT3B1FS[8][10]
Siecor 11A[8][9]	

Notes:

[1]Arresters listed under this category are not complete station protectors. They are intended for use as components, as accepted and listed, in the station protector "ni" and "nm" sections of the List of Materials. Arrester units here shall not be used in a station protector listed in the "ni" or "nm" section unless the same arrester unit is listed for use in the particular protector on the "ni" or "nm" pages.

[2]2-electrode.

[3]3-electrode.

[4]Medium duty.

[5]Heavy duty

[6]Maximum duty.

[7]Designations after the slash "/" mark indicates the arrester unit which RUS has accepted for use in the listed protector. Unless otherwise noted, no other arrester unit is RUS accepted for use in protectors listed here.

[8]PEG-7, Class I Category.

[9]For use with Siecor's C-388.

[10]For use with Circa Telecom's 2500QC2-100

Manufacturer **Type Designation**

ec - Carrier Equipment

Digital Carrier Systems

	D4 Type Trunk Carrier (PE-60a)	Subscriber Carrier[1] (PE-64a)	T1 Type Span Line[2] (PE-60b)	Automatic Protection Switch (PE-60c)
AFC	-	UMC 1000A[7]	-	-
Alcatel	D448	-	T1	B302
AT&T	D4	-	-	-
CIL/Wescom	360 D4[3]	DuaLine Plus[8]	T1	-
CSE/Vidar	-	-	T-Carrier	-
DSC Communications	-	Pairspan[6]	-	-
Raychem	-	Miniplex[5]	-	-
Seiscor	-	S-24DU[3]	-	-
Siemens Telecom Networks	9004 A/B	MLC-24[4]	-	-
Sierra	-	DSS-6000	-	-

Notes:

[1]D2/D3 encoding; compatible with compandored station carrier in small cables.

[2]Span line consists of (a) span terminating equipment, (b) line access units, (c) line repeaters and repeater housings.

[3]Optional Clear Channel Capability available.

[4]Product listed only for the Office Terminal/Remote Terminal (OT/RT) configuration. The Integrated Terminal (IT) for use on the GTD-5 EAX switch is not included for listing purposes.

[5]Only the Miniplex COT and Miniplex RT are RUS Accepted. This is a 2—channel carrier system.

[6]This is a 2-line carrier system.

[7]Unit is also listed as a concentrator. See category "ep."

[8]Only the DDL125, DDL135, DDL201, DDL205, DDL210, DDL221, and DDL237 are RUS Accepted. This is a 2-channel carrier system.

gm - Digital Microwave Radio Systems

The following radio systems comply with PE-63 and Form 397d:

Manufacturer	Designation	RF Band	Radio Capacity & Interfaces[1]	Multiplex Designation
Alcatel	MDR-5302	2 GHz	4 DS1	-
	MDR-5202	2 GHz	8 DS1	-
	MDR-5102	2 GHz	12 DS1	-
	MDR-4106C	6 GHz	1 DS3 (28 DS1)	DMX-3003
	MDR-4206	6 GHz	2 DS3 (56 DS1)	DMX-3003
	MDR-4306	6 GHz	3 DS3 (84 DS1)	DMX-3003
	MDR-4111	11 GHz	1 DS3 (28 DS1)	DMX-3003
	MDR-4211	11 GHz	2 DS3 (56 DS1)	DMX-3003
	MDR-4311	11 GHz	3 DS3 (84 DS1)	DMX-3003
	MDR-3118A	18 GHz	4 DS1	-
	MDR-3218	18 GHz	8 DS1	-
	MDR-3418	18 GHz	1 DS3 (28 DS1)	DMX-3003
Cylink	Airlink T1	5 GHz	1 DS1[4]	-
DMC	DMC-2M/SE	2 GHz	4 DS1	-
	DMC-10M/SE	10 GHz	4 DS1	-
	DMC-18M	18 GHz	(4xN) DS1[3]	-
Harris-Farinon	Urbanet 2	2 GHz	1 DS1 (4 DS1)	DVT 4
	DVM2-8T	2 GHz	2 DS2 (8 DS1)	DVT 8
	DVM6-45	6 GHz	1 DS3 (28 DS1)	DVT 44
	DM6-90	6 GHz	2 DS3 (56 DS1)	DVT 44[2]
	Urbanet 10ec	10.5 GHz	1 DS1 (4 DS1)	DVT 4
	DM11-45	11 GHz	1 DS3 (28 DS1)	DVT 44
	DM11-90	11 GHz	2 DS3 (56 DS1)	DVT 44[2]
Northern Telecom	RD-4	4 GHz	2 DS3 (56 DS1)	DMT-300
	RD-6	6 GHz	3 DS3 (84 DS1)	DMT-300
	RD-11	11 GHz	3 DS3 (84 DS1)	DMT-300
TeleSciences	DR2C-96	2 GHz	4 DS1	-
	DR2D-192	2 GHz	8 DS1	-

Notes: [1]The basic radio capacity and interface is shown first; with additional multiplex equipment, the maximum DS1 capacity is shown as (xx DS1). The manufacturer's digital multiplexer designation is also shown; this may be plug-in cards for the radio equipment, or separate multiplexer equipment.

[2]Includes own mounting framework; not compatible with standard 19" racks.

[3]For N = 1, 2 or 4.

[4]Provides a wireless T1 link and uses spread spectrum technology..

Manufacturer	Type Designation	RF Band

rm - Mobile and Fixed Radiotelephone Equipment

BETRS Radio Systems

Manufacturer	Type Designation	RF Band
Carlson Communications	Optaphone Star 2000[2]	150 and 450 MHz
InterDigital	Ultraphone 100[1]	450 MHz

Notes:

[1]Uses TDMA (time division multiple access) with demand assignment. 2400 baud facsimile and data transmission. Only the base station and subscriber terminal are RUS Accepted.

[2]Uses FDMA (frequency division multiple access) technology with demand assignment and serves up to 48 subscribers.

pc - Stored Program Digital Switching Equipment

Manufacturer	Base	Accepted System Release[6]	Acceptance Classification[1]	RST(s)
AG Communications Systems	GTD-5EAX	1.6.4.1	A	RSU
American Digital Switching	ITS 4/5	9.1	A	RSS
AT&T	5ESS-2000[7]	5E(10)	A	RSM ORM TRM
Mitel	GX5000[8]	GS5006	A	RST
Northern Telecom	DMS-10[2]	409.11	A	RSLM (OPSM)[5] RLCM (OPAC) RSLE RSC-S
	DMS-100[3]	LEC00007	A	RLCM (OPAC) RSC-S RSC
Redcom Lab., Inc.	MDX	15.1	A	MDX-R
Siemens Telecom Networks	DCO[4]	20.0 O-N-E UP	A	RLS-450 RLS-1080 RLS-4000
	EWSD	14.E	A[9]	RCU RCU-160C

See page 6.4.1 for notes.

Notes:

(1)Acceptance Classification: C-Conditionally Accepted, A-Accepted.

(2)The DMS-10 listing includes the one and two bay version and its application as an HSO, SSO or LCC.

(3)The DMS-100 listing includes its application as a DMS-200 tandem office and the smaller version of the SuperNode configuration, the DMS-SuperNode SE.

(4)DCO listing includes the DCO-SE one and two bay configurations and DCO RNS.

(5)Only the 192 line configuration of the RSLM/OPSM is accepted.

(6)The listed software/firmware system release is the most recent system release that was reviewed by RUS and found to be fully compliant with all requirements of 7 CFR 1755.522, RUS General Specification for Digital, Stored Program Controlled Central Office Equipment (Form 522). Other system releases may also be acceptable. For information on specific releases, please contact the Chairman, Technical Standards Committee "A" (Telecommunications), Rural Utilities Service, Stop 1598, 1400 Independence Avenue, SW., Washington, D.C. 20250-1598.

(7)The 5ESS-2000 digital exchange listing includes the compact digital exchange 5ESS-2000 (CDX) and the very compact digital exchange 5ESS-2000 (VCDX) in host and remote switching terminal configurations. When a VCDX is upgraded to a CDX or full sized 5ESS-2000, it can host the listed RSTs.

(8)The GX5000 listing includes the GX5000 S application, a one shelf pair, 19 inch rack mounted, small host or RST system configuration.

(9)The 16 circuit line card is not included in this Acceptance.

Manufacturer   **Type Designation**

ep - Electronic Subscriber Line Concentrators

AFC   UMC 1000A[6]

Alcatel Network Corp.   1218CS[4]

AT&T   SLC^R Series 5[2]
                                                                   SLC^R-2000 Access System[2]

DSC Communications   Timespan[1]
                                                                   Litespan-2000

HUBBELL Pulsecom   PSC Series 5[3][5]

NEC   ISC-303

Northern Telecom   S/DMS AN[7]
                                                                   DMS-1 URBAN

RELTEC Corp.   DISC*S

Siemens Telecom Networks   914A, 914E

Notes: [1]This listing includes the following configurations: 32, 64, 128, 256, and 512.

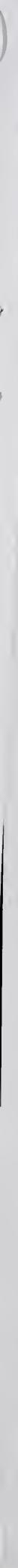[2]This listing includes the AT&T SLC^R-2000 Multi-Services Distant Terminal.

[3]This listing includes the following configurations: RT 596 (96 lines), RT5 192 (192 lines), RT384 (384 lines) and RT 576 (576 lines).

[4]This listing includes the 1218DS which provides for a single ended interface for use with the Alcatel 1210 digital switching system only.

[5]This listing includes the PSC Series 5 Fiber Kit.

[6]The system includes remote subscriber terminals with local exchange terminal units or TR-008 direct digital interface. Unit is also listed as a carrier system. See item category "ec."

[7]This listing includes the Northern Telecom Full Service Terminal (FST) configuration of the S/DMS Access Node.